

Application No. 09/765,608
Reply to Office Action of 01/06/04

REMARKS

Favorable reconsideration of the present application is respectfully requested.

Claims 1-8 are presented for examination in this application.

The outstanding Office Action includes a rejection of Claims 1-8 under 35 U.S.C. §103(a) as being unpatentable over Frazier et al (U.S. Patent No. 5,193,008, Frazier) in view of Itoh et al (U.S. Patent No. 5,412,408, Itoh).

As noted in the last response, the present invention is directed to an image forming apparatus providing light fluxes overlapped in a sub-scan direction of the apparatus so as to form a central dot on a photosensitive layer when the exposure intensity exceeds 50% of a maximum value where the overlap between adjacent light fluxes is centered. The overlapped light fluxes are provided with a beam spot diameter W_s defined by $1/e^2$ of the maximum value in the exposure distribution of the light flux, such that a ratio between W_s and an interval L between adjacent scan lines satisfies the formula $1.2 < W_s/L < 4.5$ to thereby form the central new dot between adjacent scan lines in a manner that stabilizes the formed dots to increase resolution in the sub-scan direction as discussed on line 8 of page 7 through line 5 of page 8 of the specification, for example.

The outstanding rejection of Claims 1-8 over Frazier in view of Itoh is traversed.

Page 2 of the outstanding Action once again notes that Frazier teaches interleaving pixel formation such that "a dot is formed at a center between adjacent light fluxes as a result of adjacent light fluxes being overlapped with one another," with regard to the disclosure of col. 3, line 43-col. 4, line 41.

As was noted in the last response, the actual teaching of col. 3, line 64-col. 4, line 6, of

Frazier is like that of col. 5, lines 42-58, and relates to the basic operating principle of Frazier as to control of the laser beam activated interval ("on" time) to control the creation of dots between the beam horizontal scanning lines.

The last response further explained that in contrast to Frazier's principle of operation, the subject matter of independent Claims 1, 3, 5, and 7 all require a ratio of a static beam-spot diameter W_s in a sub-scan direction on a surface of said photosensitive body (or means) defined by $1/e^2$ of a maximum value in an exposure distribution of the beam spot to an interval L between adjacent scan lines to satisfy the formula $1.2 < W_s/L < 4.5$ to thereby form new dots between adjacent scan lines. Thus, the present invention requirement for a ratio of a static beam-spot diameter W_s in a sub-scan direction on a surface of said photosensitive body (or means) defined by $1/e^2$ of a maximum value in an exposure distribution of the beam spot to an interval L between adjacent scan lines to satisfy the formula $1.2 < W_s/L < 4.5$ has nothing to do with the Frazier control of the laser beam activation interval ("on" time) to control the creation of dots.

In an apparent attempt to cure this deficiency in Frazier, the outstanding Action now suggests that FIG. 6 of Frazier can be somehow interpreted to explicitly shows a beam spot diameter corresponding to the claimed beam-spot diameter W_s (that is defined by $1/e^2$ of the maximum value in the exposure distribution of the light flux) relative to the broken lines illustrated in Figure 6. As best as can be understood, the outstanding Action appears to be misinterpreting the diagrammatic showings of the Figure 6 pixel dots E-I that are said to correspond to an "on time of 134 nsec" at lines 28-32 of col. 10 of Frazier. This is a shorter duration pulse width than the 201nsec one used for pixel dots A-D and J-K, as explained at lines

19-24 of col. 10 of Frazier, so that the exposure amount relative the individual exposures of pixel dots A-D and J-K is larger than that for pixel dots K-I so that the total exposure amount for the pixel dots E-I that is performed separately for scan lines 70 and 72 can be equal to the exposure amount for pixel dots A-D produced during scan line 72 and the exposure amount for pixel dots J-M produced during scan line 70.

Thus, the presumption made in the outstanding Action that these broken line circles can be translated into claimed beam spot diameters, defined as $t_0 1/e^2$ of the maximum value in the exposure distribution of the light flux, is not reasonable as the longer duration of the laser beam of 201 nsec for producing pixel dots A-D for scan line 72 should produce a considerably larger exposure along scan line 72 than the exposure produced by the considerably shortened (134 nsec) laser beam for any of pixel dots E-I that occurs along this same scan line.

Further in this regard, it is clear that the diagrammatic showings of pixel outer zones relative to the broken line circles of Figure 6 as to the pixel dots E-I are further not relevant to the claimed beam spot diameter W_s defined as $t_0 1/e^2$ of the maximum value in the exposure distribution of the light flux as it is only the illustrated speckled inner zones that are sufficiently actuated for image creation between scan lines 72 and 70. See col. 11, lines 33-39, for example.

Further note In re Wilson, 136 USPQ188, 192, (CCPA 1963) that specifically points out that because “[p]atent drawings are not working drawings,” arguments predicated on portions of drawings “obviously never intended to show the dimensions of anything,” like the arguments in the present outstanding Action that $W_s/L=2$ can be derived from measuring the broken circle diameter for pixel dot “E” relative to the space between the lines 70 and 72, are without merit.

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Also note In re Wright, 193 USPQ 332, 335 (CCPA 1977) and In re Chitayat, 151 USPQ 224, 226 (CCPA 1969) as to the inappropriate use of measurements from diagrammatic patent drawings serving as a substitute for the required demonstration of clarity and definiteness of reference disclosure that the case law requires (note, for example, In re Hughes 145 USPQ 467, 471 (CCPA 1965) and In re Moreton, 129 USPQ 227, 230 (CCPA 1961)).

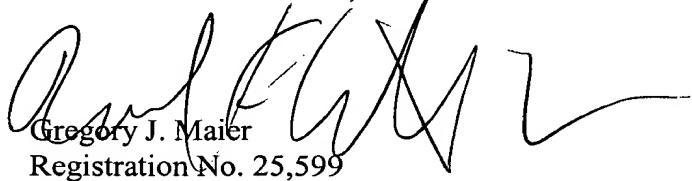
Also without merit is the apparent attempt in the outstanding Action to first view the claimed beam spot diameter W_s as if this diameter can be measured as to pixel dot outer zones in Figure 6 of Fraizer with total disregard to the claimed requirement as to $1/e^2$ of the maximum value in the exposure distribution of the light flux, with this missing ingredient being then added by the reference to Itoh at the top of page 4 of the outstanding Action. However, to whatever extent that Itoh teaches a definition of a beam spot in terms of providing $1/e^2$ of the maximum value for an effective exposure, this definition cannot be translated into the pixel dot outer zones in Figure 6 of Fraizer because no exposure occurs there as actual imaging occurs only in the much smaller inner zones as explained above.

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As no further issues are believed to remain outstanding relative to this application, it is respectfully submitted that this application is clearly in condition for formal allowance, and an early and favorable action to that effect is, therefore, respectfully requested.

Respectfully submitted,

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